

Chapter 7. National Longitudinal Surveys

Background

The National Longitudinal Surveys (NLS) provide data on the labor force experience (current labor force and employment status, work history, and characteristics of current\last job) of five groups of the United States population.

The NLS was begun in the mid-1960s with the drawing of four samples: *Young men* who were 14 to 24 years old as of January 1, 1966, *young women* who were 14 to 24 years old as of January 1, 1968, *older men* who were 45 to 59 years old as of January 1, 1966, and *mature women* who were 30 to 44 years old as of January 1, 1967. Each sample originally had about 5,000 individuals with overrepresentation of blacks. In the early 1980s, the young men and older men surveys were discontinued.¹ The two women's surveys continue and are currently collected on a biannual cycle.

In 1979, a new cohort was begun with a sample of over 12,000 young men and women who were 14 to 21 years of age as of January 1, 1979. It included oversamples of blacks, Hispanics, economically disadvantaged nonblacks/non-Hispanics, and youth in the military. The military oversample was discontinued after the 1984 survey and the economically disadvantaged nonblack/non-Hispanic oversample was discontinued in 1990. This survey is called the Youth79 cohort, and the cohort members were interviewed annually from 1979 to 1994. After 1994, respondents are scheduled to be interviewed every other year.

In 1997, data collection will begin for a new cohort of youth. The sample will consist of approximately 12,000 young men and women aged 12 to 17 as of January 1, 1997. It will include oversamples of blacks and Hispanics. This survey will be called the Youth97 cohort, and the cohort members will be interviewed annually.

Along with information of labor force experience, additional information has been gathered on a regular basis on a range of factors potentially affecting labor market behavior:

¹ In 1990, the National Institute on Aging, through a contract with the Ohio State University Research Foundation, reinterviewed living members of the Older Men's cohort and widows or next-of-kin of deceased cohort members.

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Investments in education and training; geographic region of residence and local labor market conditions; the formative influence of parents; current marital status and family responsibilities; financial characteristics; work-related attitudes and aspirations; and such potentially delimiting factors as health problems and job discrimination.

With the advent of the Youth79 cohort in the late 1970s, the content of the surveys expanded and diversified, reflecting the interests of other governmental agencies in addition to the Department of Labor. Support from the Department of Defense and the Armed Services made possible interviews with 1,280 youth enlisted in the military in 1979-84. In a 1980 study jointly sponsored by the Departments of Defense and Labor, the Armed Services Vocational Aptitude Battery was administered to the civilian and military youth samples. Beginning in 1979, a 5-year cooperative effort with the National Center for Research in Vocational

Education was begun. This effort resulted in surveys of the high schools of the civilian youth respondent, and detailed transcript information was collected on young persons completing high school. In 1981, the National Institute of Education sponsored a set of time-use questions. In periodic years, alcohol and substance abuse questions were added to the Youth79 survey with funding from the National Institute on Alcohol Abuse and Alcoholism and the National Institute on Drug Abuse. Also, the National Institute of Child Health and Human Development regularly sponsors the administration of a battery of cognitive and socioemotional assessment instruments to children of female Youth79 respondents, as well as the fertility and child-care components of the Youth79 survey.

The primary responsibility for tasks such as sample selection, field work, and editing of data files, has resided since the project's inception within two separate organizations: The Bureau of the Census for the original cohorts and the National Opinion Research Center (NORC) at the University of Chicago for the Youth cohort. The methods used by each are coordinated by BLS and the Center for Human Resource Research of The Ohio State University.

Sampling

Each of the four original NLS samples was designed to represent the civilian noninstitutionalized population of the United States at the time of the initial survey. Each age-sex cohort is represented by a multi-stage probability sample located in 235 sample areas containing 485 counties and independent cities representing every State and the District of Columbia. The samples were drawn by the Bureau of the Census from the primary sampling units (PSU's) that had been selected for the experimental Monthly Labor Survey conducted between early 1964 and 1966. A primary sampling unit is composed of either a single county or group of counties (SMSA). In certain special situations, State-defined units are termed "independent cities" or "parishes." In these instances, such units are used in the definition of primary sampling units. The 235 sample areas were selected by grouping all of the Nation's counties and independent cities into about 1,900 PSU's and further forming 235 strata of one or more PSU's that are relatively homogeneous according to socioeconomic characteristics. Within each of the strata, a single PSU was selected to represent the stratum. Within each PSU, a probability sample of housing units was selected to represent the civilian noninstitutionalized population.

Since one of the survey requirements was to provide separate reliable statistics for blacks, households in predominantly black enumeration districts (ED's) were selected at a rate between three and four times that for the households in predominantly white ED's. The sample was designed to provide approximately 5,000 interviews for each of the four

cohorts—about 1,500 blacks and 3,500 whites.

For the Youth79 cohort, the following three independent probability samples, which were designed to represent the entire population of youth born in the United States between 1957 and 1964, were drawn: (1) A cross-sectional sample designed to be representative of the noninstitutionalized civilian segment of American young people aged 14 to 21 as of January 1, 1979; (2) a supplemental sample designed to overrepresent civilian Hispanic, black, and economically disadvantaged non-Hispanic, nonblack youth; and (3) a military sample designed to represent the population aged 17 to 21 as of January 1, 1979 and serving in the military as of September 30, 1978.

All sample selection was done through a multi-stage stratified area probability sample of dwelling units and group quarter units, except for individuals on active military duty. A screening interview was administered in approximately 75,000 dwellings and group quarters distributed among 1,818 sample segments in 202 PSU's (inclusive of most of the 50 States and the District of Columbia). Included in this screening interview was information which would allow the identification of persons for sample membership.

Members on active military duty as of September 30, 1978, were sampled from rosters provided by the Department of Defense. Sample selection was accomplished in two stages. In the first stage, a sample of approximately 200 "military units" was selected. These units were selected with probabilities proportional to the number of persons age 14 to 21 within the unit. Within selected units, persons age 14 to 21 were subsampled with probabilities inversely proportional to the first-stage selection probability. Females were oversampled at a rate approximately six times that of the males in order to produce approximately equal numbers of males and females. Within each sex, the sample was stratified on the basis of military service (Army, Navy, Air Force, and Marine Corps) and geographic location.

The Youth97 cohort will consist of two independently selected, stratified, multistage area probability samples designed to represent American youth born between 1979 and 1984: (1) A cross-sectional sample designed to be representative of young people aged 12 to 17 as of January 1, 1997; and (2) a supplemental sample designed to overrepresent black and Hispanic youth. For both probability samples, 100 PSU's selected to represent all 50 states and the District of Columbia will be used. For the cross-sectional sample, the selection probability for each PSU will be proportional to the 1990 census count of its housing units. For the supplemental sample, selection probabilities for PSU's and segments will be based on 1990 census counts of blacks and Hispanics in the age range of 12 to 17 years; moreover, areas that contain high percentages of black and Hispanic residents will be oversampled. Only eligible black and Hispanic youths will be screened into the Youth97 sample from the supplemental areas.

Initial interviews with each of the four original cohorts

occurred between 1966 and 1968, and initial interviews for the Youth79 cohort occurred in 1979. About 90 percent of the individuals designated for interviewing responded to each of the first-year interviews: 5,020 (91 percent) of the older men and 5,225 (92 percent) of the young men were interviewed in 1966; 5,083 (94 percent) of the mature women were interviewed in 1967; 5,159 (93 percent) of the designated young women were interviewed in 1968; 12,686 (90 percent) of the Youth79 were interviewed in 1979. Completion rates for the initial and latest survey years of each of the cohorts are summarized in table 1.

Questionnaire Design

Development of each survey instrument involves a review of earlier questionnaires, analysis of field notes from the previous round, examination of problems encountered during the fielding of other cohort's surveys, and identification of new topics and/or questions for inclusion in the current survey. Development of the first draft of the questionnaire typically begins 6 to 12 months prior to fielding. Close examination at the early developmental stage occurs on issues such as placement of questions, overall format of the questionnaire, survey timing, and sensitive questions. Advice on question inclusion as well as review of the draft survey instrument is sought from technical review committees and other agencies which regularly use these data. In an effort to promote comparability across surveys, new questions, whenever possible, follow the language and format

of already developed questions from other surveys.

The central focus of each cohort's survey has, to some extent, been determined by the particular stage of labor market attachment that each of these five unique age-sex groups was experiencing. Each survey instrument is organized around core sets of questions on the following topics: Employment, education, training, work experience, income, marital status, health, attitudes toward work, as well as occupational and geographic mobility. In addition, for each cohort, there are special set of questions that are specific to that cohort. Over the years, for example, the surveys of older men have focused on plans for their future, specifically retirement, pension plans, and health. Special topics for the mature women's cohort have included questions on volunteer work, household activities, plans for retirement, child care, care of parents, health insurance, commuting time and costs, attitudes toward women working, and perceived job discrimination. The surveys of both the young men and young women's cohorts have focused on educational goals, high school and college experiences, characteristics of their high school, and future job plans.² Surveys of the young men have, in addition, collected information on military service and union membership, while special topics for the young women's cohort have included fertility, child care,

² In 1968, a supplemental survey of the last secondary school attended by respondents of the young men and young women cohorts was conducted. This special survey was designed to collect information on the academic performances and intelligence scores of respondents as well as the programs and facilities of their high schools.

Table 1. Completion rates by NLS cohort for the initial and latest survey years

NLS cohort	Designated for interviewing	Number and percent interviewed in initial survey year			Number and percent interviewed in last/latest survey year		
		Number	Percent	Year	Number	Percent ¹	Year
Older men	5,518	5,020	91	1966	2,091	42	1990 ²
Mature women	5,393	5,083	94	1967	2,714	53	1995
Young men	5,713	5,225	92	1966	3,398	65	1981
Young women	5,533	5,159	93	1968	3,025	59	1995
Youth	14,574	12,686	87	1979	8,891	89	1994 ³
Cross-section sample	6,812	6,111	90	1979	5,457	89	1994
Supplemental sample	5,969	5,295	89	1979	3,256	89	1994 ⁴
Military sample	1,793	1,280	72	1979	178	89	1994 ⁵

¹ Calculated as the percent of respondents interviewed during the initial survey year. Includes certain out-of-scope respondents notably deceased, institutionalized, and respondents enlisted in the military.

² In 1990, interviews were completed with 2,091 surviving members of the original sample and with 1,341 widows and 865 other next-of-kin of decedents from whom information was obtained about the decedent (including work experience prior to death and cause of death). A total of 4,297 interviews were completed, representing information about 86 percent of the original sample. These interviews were sponsored by the National Institute on Aging through a contract

with The Ohio State University Research Foundation.

³ After the 1984 survey, 1,079 respondents in the military subsample were not eligible for interviews. After the 1990 survey, 1,643 economically disadvantaged nonblack/non-Hispanic respondents in the supplemental sample were not eligible for interview. Youth retention calculations are based on the total number of respondents eligible for interview (9,964).

⁴ Calculated as a percent of the 3,652 supplemental sample respondents who were retained for interviewing after 1990.

⁵ Calculated as a percent of the 201 military respondents who were retained for interviewing after 1984.

responsibility for household tasks, attitudes toward women working, and perceived job discrimination.

The Youth79 survey instruments contain core sets of questions on the following topics: (1) Marital history; (2) schooling; (3) current labor force status; (4) jobs and employer information; (5) training; (6) work experience and attitudes; (7) military service; (8) health limitations; (9) fertility; (10) income and assets; and (11) geographic residence. While information on these topical areas has been collected during each survey year, users should be aware that the number of questions on any given topic as well as the wording and universes for each question may differ from year to year.

Additional sets of questions on a variety of factors which may affect a young person's labor force attachment have been included during selected years. During the initial year of the Youth79 survey, information was collected on family background, knowledge of the world of work, a retrospective evaluation of labor market experience, the influence of family and friends, and an abbreviated Rotter locus of control scale.³ Subsequent surveys have included questions on job search methods, migration, attitudes towards work, educational and occupational aspirations and expectations, school discipline, self-esteem, child care, pre- and post-natal health behavior, drug and alcohol use, delinquency, time use, AIDS knowledge, and childhood residences.

The Youth97 survey instrument is expected to contain sets of questions on a number of topics including: (1) Current labor force status; (2) schooling; (3) peers; (4) time-use; (5) jobs and employer information; (6) training; (7) marriage; (8) fertility; (9) program participation; (10) income and assets; (11) health; (12) expectations; and (13) relationship with parents. In the initial year of the Youth97 survey, an interview with the parents of youths also will be conducted.

Collection Methods

Respondents selected for interviewing each year, with the exceptions noted below, are those who had participated in the initial year interviews and who were alive at the interview date. For the original cohorts, subsequent to the first-year interview, those respondents who had refused to be interviewed were dropped from the sample. Beginning with the third interview year, respondents who had not been interviewed for any reason for 2 consecutive years also were eliminated from the sample. However, this noninterview exclusion was not applied to those members of the young men's cohort who were subsequently inducted into the Armed Forces. No interviews were attempted with this group while they were on active military duty. They were, how-

³ The Rotter scale used in the Youth79 survey is a four-item abbreviated version of the longer scale developed by Julian Rotter in 1966. The scale was designed to measure the extent to which individuals believe that they have control over their own lives through self-motivation or self-determination as opposed to the extent that the environment controls their lives.

ever, retained in the sample and interviewed as soon as they left active military service. Beginning in the mid 1980s, the Bureau of the Census modified the procedures to select respondents for interviewing and no longer dropped refusals and those not interviewed for 2 survey years.

In the Youth79 survey, attempts are made to reach all individuals within the active samples. No respondents have been routinely excluded from locator efforts with the exception of respondents who have died. The permanent Youth79 sample designated for interviewing during the 1979-84 interview years consisted of all civilian and military youth who were interviewed in the base year and who were alive at the survey date. In 1985, when interviewing of the full military sample ceased, the total Youth79 sample size dropped from 12,686 to 11,607. Retained for interviewing were the original 11,406 civilian respondents as well as 201 military respondents. After the 1990 survey, interviews with the economically disadvantaged nonblack/non-Hispanic oversample were discontinued, reducing the Youth79 sample size to 9,964.

While personal interviews have been the method used for most of the survey years, at times telephone interviews also were conducted. In addition, interviews by mail were conducted for the 1968 older men and mature women surveys. Telephone contact may occur in cases where the respondent resides in a remote area or the field staff determines that it is the preferred method of interviewing a respondent. Interview schedules and retention rates for the original four cohorts and the youth cohort are listed in tables 2 and 3, respectively.

Estimation

The NLS surveys are based upon stratified multi-stage random samples with oversamples of blacks, and in the case of the youth cohort, Hispanics, poor whites, and youth in the military. Data from each interview year include a weight specific to that year. When this weight is applied, the number of sample cases is translated into the number of persons in the population which those observations represent.

The assignment of individual respondent weights involves at least three stages. The first stage involves the reciprocal of the probability of selection at the baseline interview. Specifically, this probability of selection is a function of the probability of selection associated with the household in which the respondent was located as well as the subsampling (if any) applied to individuals identified in screening. The second stage of weighting adjusts for differential response (cooperation) rates in both the screening phase and baseline interview. Differential cooperation rates are computed (and adjusted) on the basis of geographic location, group membership, and within group, subclassification. The third stage of weighting attempts to adjust for certain types of random variation associated with sampling as well as sample "undercoverage." This ratio estimation is used to assure that

Table 2. Interview schedules and retention rates¹: Original four cohorts

Year	Older men, 45 to 59 in 1966			Mature women, 30 to 44 in 1967		
	Type of interview	Total	Retention rate	Type of interview	Total	Retention rate
1966	Personal	² 5,020	100.00			
1967	Personal	4,758	94.8	Personal	5,083	100.00
1968	Mail	4,662	92.9	Mail	4,910	96.6
1969	Personal	4,395	87.5	Personal	4,712	92.7
1970						
1971	Personal	4,189	83.4	Personal	4,575	90.0
1972				Personal	4,471	88.0
1973	Telephone	3,965	79.0			
1974				Telephone	4,322	85.0
1975	Telephone	3,746	74.6			
1976	Personal	3,501	69.7	Telephone	4,172	82.1
1977				Personal	3,964	78.0
1978	Telephone	3,233	64.4			
1979				Telephone	3,812	75.0
1980	Telephone	3,015	60.1			
1981	Personal	2,846	56.7	Telephone	3,677	72.3
1982				Personal	3,542	69.7
1983	Telephone	2,647	52.7			
1984				Telephone	3,422	67.3
1985						
1986				Telephone	3,335	65.6
1987				Personal	3,241	63.7
1988						
1989				Personal	3,104	61.1
1990	Personal	³ 2,091	41.7			
1991						
1992				Personal	2,953	58.1
1993						
1994						
1995				Personal	2,714	53.4
	Young men, 14 to 24 in 1966			Young women, 14 to 24 in 1968		
1966	Personal	5,225	100.0			
1967	Personal	4,790	91.7			
1968	Personal	4,318	82.6	Personal	5,159	100.0
1969	Personal	4,033	77.2	Personal	4,930	95.6
1970	Personal	3,993	76.4	Personal	4,766	92.4
1971	Personal	3,987	76.3	Personal	4,714	91.4
1972				Personal	4,625	89.6
1973	Telephone	4,014	76.8	Personal	4,424	85.8
1974						
1975	Telephone	3,977	76.1	Telephone	4,243	82.2
1976	Personal	3,695	70.7			
1977				Telephone	4,108	79.6
1978	Telephone	3,538	67.7	Personal	3,902	75.6
1979						
1980	Telephone	3,438	65.8	Telephone	3,801	73.7
1981	Personal	3,398	64.9			
1982				Telephone	3,650	70.8
1983				Personal	3,547	68.7
1984						
1985				Telephone	3,720	72.1
1986						
1987				Telephone	3,639	70.5
1988				Personal	3,508	68.0
1989						
1990						
1991				Personal	3,400	65.9
1992						
1993				Personal	3,187	61.8
1994						
1995				Personal	3,025	58.6

¹ Retention rate is defined as the percent of the base-year respondents who were interviewed in any given survey year. Included in the calculations are deceased and institutionalized respondents as well as those serving in the military.

² Data were originally collected on 5,027 respondents. However, seven of

the records were determined unusable and dropped from the survey.

³ In addition to the 2,091 surviving members of the original sample interviewed during 1990, interviews also were completed with 2,206 widows or next-of-kin of deceased respondents.

Table 3. Interview schedules and retention rates: Youth cohort

Year	Youth, 14 to 21 on January 1, 1979						
	Civilian sample			Military sample		Total sample	
	Type of interview	Total	Retention rate	Total	Retention rate ¹	Total	Retention rate ¹
1979	Personal	11,406	100.0	1,280	100.0	12,686	100.0
1980	Personal	10,948	96.0	1,193	93.2	12,141	95.7
1981	Personal	11,000	96.4	1,195	93.4	12,195	96.1
1982	Personal	10,912	95.7	1,211	94.6	12,123	95.6
1983	Personal	10,995	96.4	1,226	95.8	12,221	96.3
1984	Personal	10,854	95.2	1,215	94.9	12,069	95.1
1985	Personal	10,708	93.9	² 186	92.5	³ 10,894	93.9
1986	Personal	10,472	91.8	183	91.1	10,655	91.8
1987	Telephone	10,306	90.4	179	89.1	10,485	90.3
1988	Personal	10,291	90.2	175	87.1	10,465	90.2
1989	Personal	10,424	91.4	181	90.0	10,605	91.4
1990	Personal	10,253	89.9	183	91.0	10,436	89.9
1991	Personal	8,837	90.5	181	90.0	⁴ 9,018	90.5
1992	Personal	8,833	90.5	183	91.0	9,016	90.5
1993	Personal	8,830	90.4	181	90.0	9,011	90.4
1994	Personal	8,713	89.3	178	88.6	8,891	89.2
1995							
1996	Personal						

¹ Retention rate is defined as the percent of the base year respondents within each sample type who were interviewed in any given survey year.

² A total of 201 military respondents was retained from the original military sample of 1,280.

³ The total number of civilian and military respondents in the youth cohort at the initiation of the 1985 survey was 11,607.

⁴ The total number of civilian and military respondents in the youth cohort at the initiation of the 1991 survey was 9,964.

the sample conforms to the independently derived population totals.

Subsequent to the initial interview of each cohort, reductions in sample size have occurred due to noninterviews. In order to compensate for these losses, the sampling weights of the individuals who were interviewed had to be revised. A revised weight for each respondent was calculated for each interview year using the same method described above. Sampling weights for each respondent can be found on the corresponding CD-ROM. (See the section, Presentation and Availability, later in this chapter for information on the availability of CD-ROM's.)

In the event one wishes to tabulate characteristics of the sample for a single interview year in order to describe the population being represented, it is necessary to weight the observations using the weights provided. For example, to compute the average hours worked in 1987 by individuals in the Youth cohort (persons 14 to 21 as of January 1, 1979), simply weight average hours worked by the 1987 sample weight. These weights are correct when used in this way.

Often users confine their analysis to subsamples for which respondents provided valid answers to certain questions. Weighted means here will not represent the entire population, but rather those persons in the population who would have given a valid response to the specified questions. Item nonresponse because of refusals or invalid skips is usually quite small, so the degree to which the weights are incorrect

also is probably quite small. In these instances, while the population estimates may be moderately in error, the population distributions (including means, medians and proportions) are reasonably accurate. Exceptions to this might be for data items that have relatively high nonresponse rates such as family income.

Uses and Limitations

NLS data are important tools for economists, sociologists, and other researchers in the study of the determinants of labor supply, earnings and income distribution, job search and separation, labor market inequities, and human capital investments. In addition, these data are used to study the effect of governmental policies/programs and various social-psychological factors on labor force participation.

The broad range of core NLS data coupled with the recent topical expansion of the youth surveys, the ongoing longitudinal nature of the data, and the replication of cohorts across time make the NLS a rich and yet-to-be fully exploited source of data for the continued study of such issues as: Life cycle changes, the family, the aging process, retirement decisions, geographic and occupational mobility, as well as a host of other topical and methodological analyses.

Several comprehensive reviews of NLS research (Bielby, Hawley, and Bils, 1979; Daymont and Andrisani, 1983) and

annotated bibliographies of NLS research summarize much of the work that has been generated by the NLS since the mid-1960s. The continued relevance of the NLS for policy makers at the Federal, State, and local levels, as well as the research community is summarized in *The Future of the NLS: A Report from the NSF Conference on the Future of the NLS and the NLS Technical Review Committee* (Center for Human Resource Research, 1989). A summary of some uses of the NLS made by the Federal Government can be found in *How the Federal Government Uses Data from the National Longitudinal Surveys* (Pergamit, 1991).

It is important to note that each survey is designed to be nationally representative of the specified age group (when properly weighted), not the entire population. The estimates from the survey are subject to sampling errors, or errors which arise from the fact that the estimates are drawn from a sample rather than the entire population. Also, the surveys are subject to errors due to nonresponse. Although the

weights are adjusted to account for noninterviews, nonresponse is still a possible source of bias. In addition, the surveys are subject to processing errors, although these are minimized through controlled patterns of coding, editing, and cleaning procedures.

Presentation and Availability

BLS publishes a regular report entitled *Work and Family* which is based on data that focuses on various issues of public interest. Also, articles using NLS data appear periodically in the *Monthly Labor Review*. NLS data files are available to the public in the form of compact disc-read only memory (CD-ROM). To order NLS data files, contact the NLS Public User's Office, Center for Human Resource Research, Ohio State University, 921 Chatham Lane, Suite 200, Columbus, Ohio 43221-2418, or call (614) 442-7300.

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